First record of *Pionacercus* Piersig (Acari: Hydrachnidia: Pionidae) from China with redescriptions of two species

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Abstract: The water mite genus *Pionacercus* Piersig, 1894 with two species, *Pionacercus anadyrensis* Tuzovskij, 1990 and *Pionacercus leuckartii* Piersig, 1894, is reported for the first time from China. *P. anadyrensis* Tuzovskij, 1990 and *P. leuckartii* Piersig, 1894 are redescribed and illustrated.

Key words: water mite; taxonomy; distribution

中国水螨一新纪录属及二新纪录种记述（蜱螨亚纲：水螨群：软滑水螨科）

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摘要：记述软滑水螨科中国 1 新纪录属曲足螨属 *Pionacercus* Piersig, 1894 及 2 中国新纪录种：阿那曲足螨 *Pionacercus anadyrensis* Tuzovskij, 1990 和列氏曲足螨 *Pionacercus leuckartii* Piersig, 1894。

关键词：水螨；分类；分布

Introduction

The water mite family Pionidae Thor, 1900 needs more research in China. Until now, a total of 13 species in four genera belonging to three subfamilies have been reported from China (Jin *et al.* 2010). *Pionacercus* Piersig, 1894 is a small genus in the family Pionidae, reported from the Holarctic, and includes seven species: *P. leuckartii* Piersig, 1894, *P. uncinatus* (Koenike, 1895), *P. norvegicus* Thor, 1898, *P. colymicus* Tuzovskij, 1982, *P. anadyrensis* Tuzovskij, 1990, *P. tundrosum* Tuzovskij, 2001, and *P. major* Tuzovskij, 2005 (Tuzovskij 2001, 2008, 2013; Smith *et al.* 2015). But it has not been recorded from China. In a field survey of water mites in northern China, two species of *Pionacercus* were found.

Material and methods

Water mites were collected, preserved, cleaned and mounted following Jin (1997). Abbreviations of terminology and measurement methods follow Jin (1997) and Ding *et al.*

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(2019) with some modifications: a.s.l. — above sea level; ACG — anterior coxal group (Cx-I + Cx-II); Cx-I–IV — coxae I–IV; dL — dorsal length; dW — dorsal width; Gf — genital field; I-L-1–6 — first leg, segments 1–6, i. e. IV-L-4 — fourth leg, segments 4; PCG — posterior coxal group (Cx-III + Cx-IV); L — length; LA — length between anterior end of Cx-I and posterior end of posterior apodeme of ACG; LP — length between anterior margin of Cx-III and posterior end of posterior apodeme of PCG; P-1–5 — palp segment 1–5; W — width. Abbreviations of chaetotaxy: A_1 — preantennal glandularia; A_2 — postantennal glandularia; D_1–D_4 — dorsoglandularia 1–4; E_1–E_4 — epimeroglandularia 1–4; O_1 — preocularia, O_2 — postocularia; L_1–L_4 — lateroglandularia 1–4; V_1–V_4 — ventroglandularia 1–4; n — number of specimens measured; all measurements are given in micrometers (μm).

All specimens were observed with a Leica DM 3000 microscope. Illustrations were made with Nikon Ni E microscope and modified with Adobe Photoshop CC2018. All measurements were taken with the software (Nikon NIS Elements AR 4.50). All the specimens are deposited in the Institute of Entomology, Guizhou University, Guiyang, China (GUGC).

Taxonomy

Family Pionidae Thor, 1900

Subfamily Forelinae Thor, 1923

Genus *Pionacercus* Piersig, 1894, new record to China

Pionacercus Piersig, 1894: 213–216.

Type species: *Pionacercus leuckartii* Piersig, 1894.

1. *Pionacercus anadyrensis* Tuzovskij, 1990 (Figs 1–8), new record to China

Pionacercus anadyrensis Tuzovskij, 1990: 260–263.

Male. Idiosoma. Idiosoma almost round (Fig. 1). Large part of dorsum soft. Idiosoma with two pairs of medial plates, large anterior and small posterior. Lateral and posterior parts of dorsal surface with U-shape stripes of secondary sclerotization being processes of ventral shield bearing L_1, V_4, L_4 and D_4 (dorsal view). Setae of A_1 longer than other dorsal setae. O_2 fused with anterior margin of anterior median plates. Four pairs of lyriform organs on soft dorsum. All coxal plates fused forming one plate (Fig. 2), posterior apodemes of ACG relatively developed, sickle shaped; E_2 is located on Cx-II; suture line between Cx-III and Cx-IV not complete; posteromedial margins of Cx-IV posterior apodemes well-developed, forming a shallow, triangular indentation, in which the anterior pair of genital acetabula is situated. E_4 lying free between Cx-IV and genital field. Genital plates fused with genital field. Excretory pore locating on ventral shield.

Gnathosoma. Palp (Fig. 3A) relatively short, P-2 with five dorsal setae, P-3 with three unequal dorsal setae, P-4 tapering distally, ventral surface about straight without tubercle; P-4 with numerous dorsal setae and two close ventral setae. Chelicera (Fig. 3B) gradually tapering with a well-developed claw, crescent shaped. Two ventral apodemes of infracapitulum (Fig. 3C) are very developed.

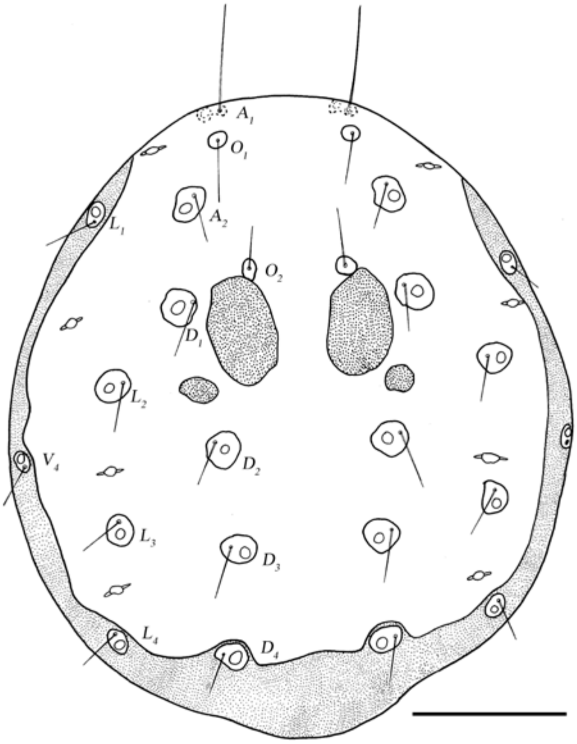

Figure 1. *P. anadyrensis* Tuzovskij, 1990. Male, dorsal view. Scale bar = 100 μm.

Ejaculatory complex (Fig. 3D) with long proximal and comparatively short distal arms, proximal chamber large, with a curving narrow proximal projection, forming a V-shape.

Legs. Legs I–IV are shown in Fig. 4. Leg I the thickest and nearly as long as leg III (Fig. 4A, 4C), I-L-1 with five dorsal setae and one ventral seta; I-L-2 with three unequal dorsal setae and two ventral setae; I-L-3 with four dorsal setae, two ventral setae and one lateral seta; I-L-4 with two dorsal setae, one ventral setae and one lateral seta; I-L-5 with two dorsal setae, two pairs of setae and one lateral seta; I-L-6 with two long and slender setae, several later thin setae. II-L-1 (Fig. 4B) with three dorsal setae and one ventral seta; II-L-2 with four dorsal setae and one ventral seta; II-L-3 with three dorsal setae, two ventral setae and one lateral seta; II-L-4 with four dorsal setae, three ventral setae and three lateral setae; II-L-5 with three dorsal setae, five ventral setae, one lateral seta and four swimming setae; II-L-6 with one dorsal seta, one ventral long and slender seta, and several thin setae. III-L-1 (Fig. 4C) with two dorsal setae, one ventral seta and one lateral seta; III-L-2 with two dorsal setae, three ventral setae and one lateral seta; III-L-3 with two dorsal setae and four ventral setae; III-L-4 with three dorsal setae and five ventral setae and two lateral setae; III-L-5 with two dorsal setae, four ventral setae and five swimming setae. III-L-6 with five long dorsal setae, seven ventral setae and several thin lateral setae. Leg IV thickest, IV-L-1 (Fig. 4D) with three dorsal setae and one ventral feathered seta; IV-L-2 with two dorsal setae and three ventral feathered setae; IV-L-3 with five dorsal setae, three ventral setae, and two lateral setae; IV-L-4 slightly shorter than IV-L-5, with three pairs dorsal setae, five lateral short setae, numerous lateral slender and three swimming setae. IV-L-5 with five dorsal feathered setae, three ventral setae, one lateral seta and eight very long and projecting well beyond distal part of IV-L-6 swimming setae. Ventral edge of IV-L-6 with ten short thick setae rounded at apex, of which one anterior seta usually the shortest and four unequal thin setae. Claws of legs I–III (Fig. 4E) sickle-shaped and each with a short ventral and a long dorsal clawlet, but leg IV claws (Fig. 4F) with well-developed lamella, both denticles subequal in length, external denticle pointed, and internal denticle with rounded tip.

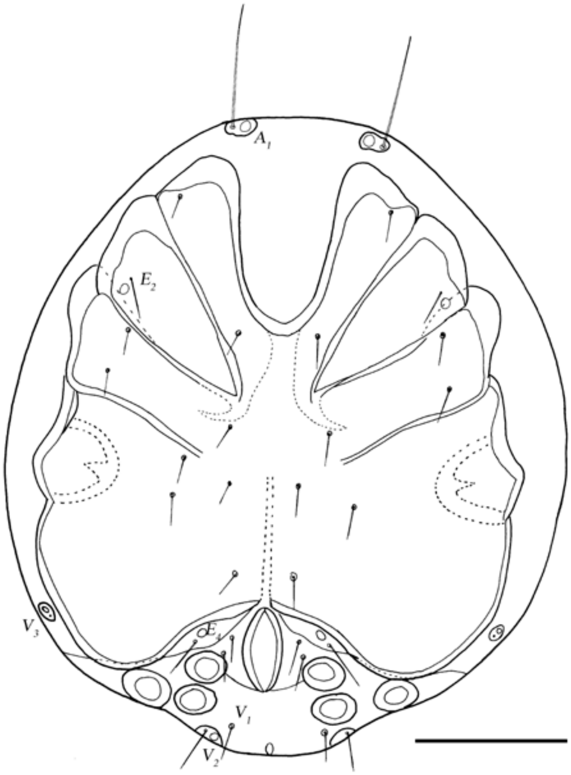

Figure 2. *P. anadyrensis* Tuzovskij, 1990. Male, ventral view. Scale bar = 100 µm.

Measurements (*n* = 4). Idiosoma L/W = 353/335–401/347 (ratio 1.05–1.16). Genital field L/W = 70/176–82/200 (ratio 0.40–0.41). LA = 159–166, LP = 230–267. Chelicera L = 111–128. L of P-1–5: 21–28, 60–69, 29–34, 55–65, 23–28. L of I-L-1–6: 42–44, 68–74, 63–73, 101–105, 123–129, 151–163. L of II-L-1–6: 48–49, 74–85, 72–75, 101–103, 123–129, 151–163. L of III-L-1–6: 51–52, 67–78, 52–62, 69–76, 107–111, 120–130. L of IV-L-1–6: 70–73, 72–77, 72–77, 86–95, 110–120, 117–128. Ejaculatory Complex L = 109–116.

Female. Idiosoma. Idiosoma almost round (Fig. 5), integument soft. Dorsum with three pairs of plates. Four pairs of lyriform organs situated along lateral margins of dorsum. A$_1$ is located on the ventral surface of the front end of the body. Coxal plates in four groups (Fig. 6), occupying approximately two-thirds venter; ACG with very well developed apodemes. E$_2$ is fused with Cx-II; medial margin of Cx-III slightly straight. Posteromedial margins of Cx-IV rarely concave. E$_4$ lying free between Cx-IV and genital field. Genital plate triangular with three acetabula each side.

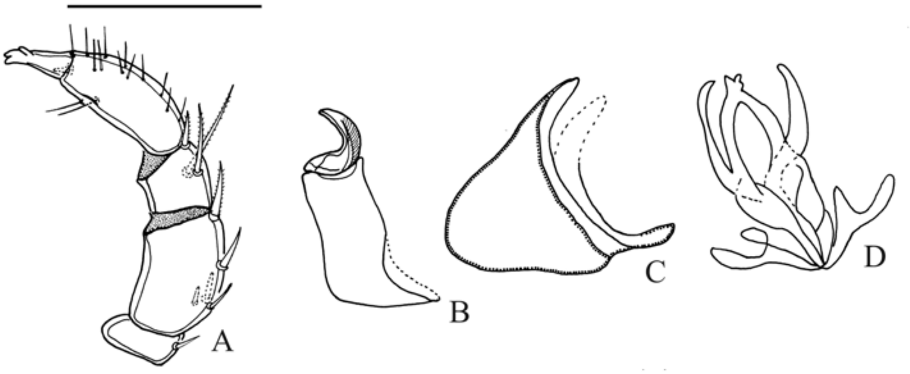

Figure 3. *P. anadyrensis* Tuzovskij, 1990. Male. A. Palp; B. Chelicera; C. Infracapitulum; D. Ejaculatory complex. Scale bar = 100 μm.

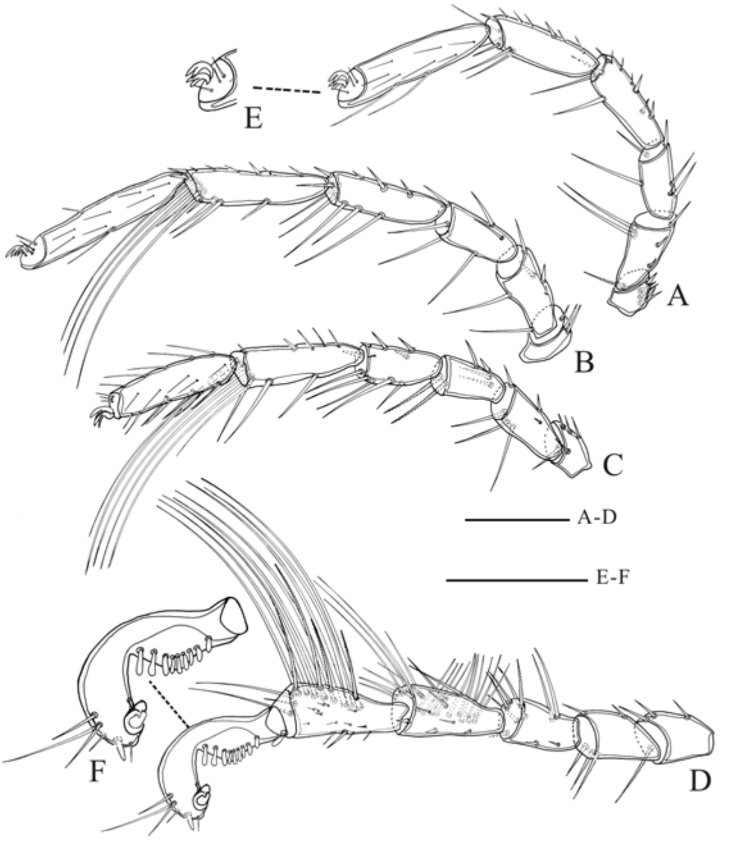

Figure 4. *P. anadyrensis* Tuzovskij, 1990. Male. A. Leg I; B. Leg II; C. Leg III; D. Leg IV; E. Claws of leg I; F. IV-L-4. Scale bars =100 μm.

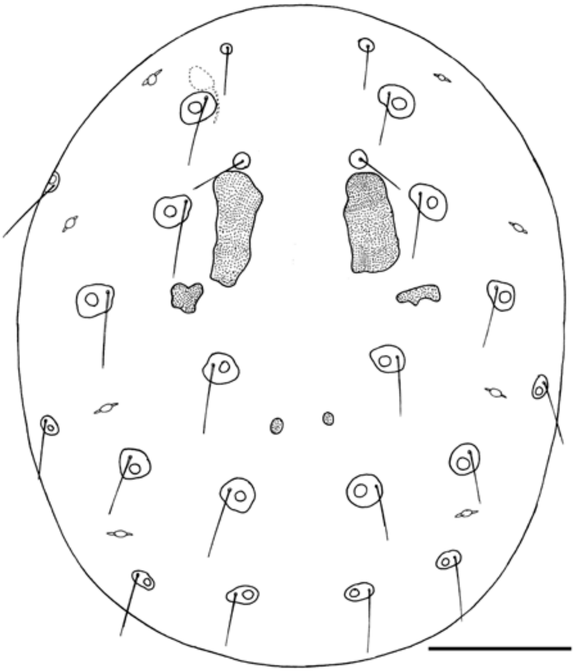

Figure 5. *P. anadyrensis* Tuzovskij, 1990. Female, dorsal view. Scale bar = 100 µm.

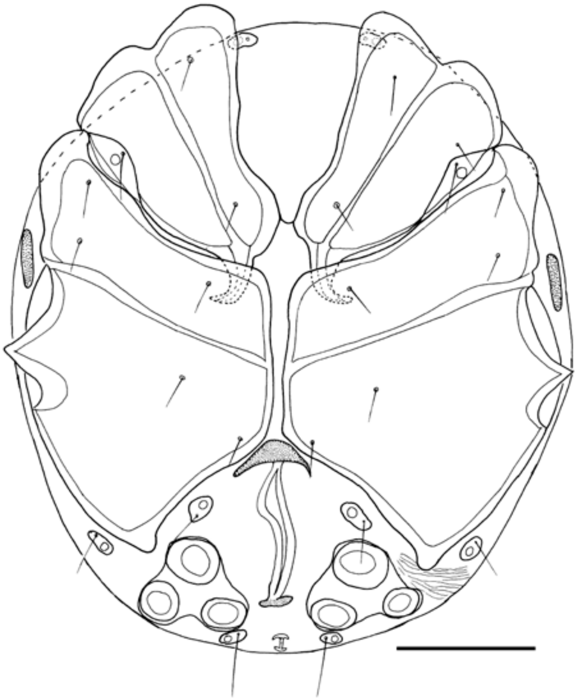

Figure 6. *P. anadyrensis* Tuzovskij, 1990. Female, ventral view. Scale bar = 100 µm.

Gnathosoma. Palp relatively short (Fig. 7A): same as the male, but P-4 tapering distally, with two dorsal setae, two ventral hair-like setae and one distolateral spine. Chelicera (Fig. 7A) and infracapitulum (Fig. 7C) same as the male.

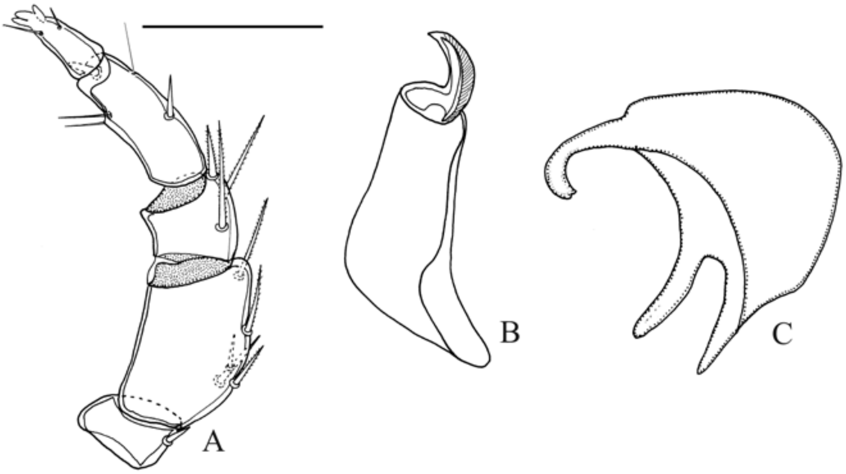

Figure 7. *P. anadyrensis* Tuzovskij, 1990. Female. A. Palp; B. Chelicera; C. Infracapitulum. Scale bar = 100 μm.

Legs. I–IV shown in Fig. 7. Leg I (Fig. 8A) shorter than others, I-L-1 with four dorsal setae and one ventral seta; I-L-2 with five dorsal setae and two unequal ventral setae; I-L-3 with four dorsal, two distal lateral, and three ventral setae; I-L-4 with five dorsal, two distal lateral, and one ventral setae; I-L-5 with two dorsal setae, three lateral setae and four short swimming setae; I-L-6 with one dorsal, two lateral and three distal setae. II-L-1 (Fig. 8B) with four dorsal setae; II-L-2 with five dorsal, three lateral, and one ventral setae; II-L-3 with five dorsal, three distal lateral, and one ventral setae; II-L-4 with three dorsal setae, two distal lateral, and four ventral setae and two short swimming setae; II-L-5 with three dorsal, three lateral (one fine and two distal), five ventral setae and five swimming setae; II-L-6 with two dorsal and three setae. III-L-1 (Fig. 8C) with two dorsal setae; III-L-2 with two dorsal, three ventral and two distal lateral setae; III-L-3 with five dorsal, one distal lateral and one short setae; III-L-4 with two dorsal, four distal lateral, five ventral and three swimming setae; III-L-5 with three pairs ventral setae, one lateral seta and five long swimming setae beyond distal part of IV-L-6; III-L-6 long and slender, with one dorsal thin seta. Leg IV (Fig. 8D) longest, IV-L-1 with three dorsal setae; IV-L-2 with two dorsal and three ventral setae; IV-L-3 with three dorsal, one lateral seta and three pairs ventral setae; IV-L-4 with two dorsal, two lateral, eight unequal ventral and four swimming setae; IV-L-5 with two dorsal, one distal lateral, three pairs ventral and seven long swimming setae; IV-L-6 with one dorsal five ventral setae. Leg I–IV claws (Fig. 8E) each with a short ventral and a long dorsal clawlet.

Measurements (*n* = 2). Idiosoma L/W = 478/404–451/357 (ratio 1.18–1.26). Genital field L/W = 85/214–85/202 (ratio 0.39–0.42). LA = 172–220. LP = 228–304. Medial distance between Cx-IV = 7–12. Chelicera L = 135–172. L of P-1–5: 25–33, 77–96, 38–44, 69–77, 41–53. L of I-L-1–6: 53–55, 67–111, 78–98, 98–118, 106–130, 137–151. L of II-L-1–6: 65–66, 82–100, 85–108, 119–143, 140–167, 150–177. L of III-L-1–6: 60–70, 94–113, 88–112, 125–148, 161–186, 157–189. L of IV-L-1–6: 107–108, 82–123, 110–135, 149–179, 158–197, 173–193.

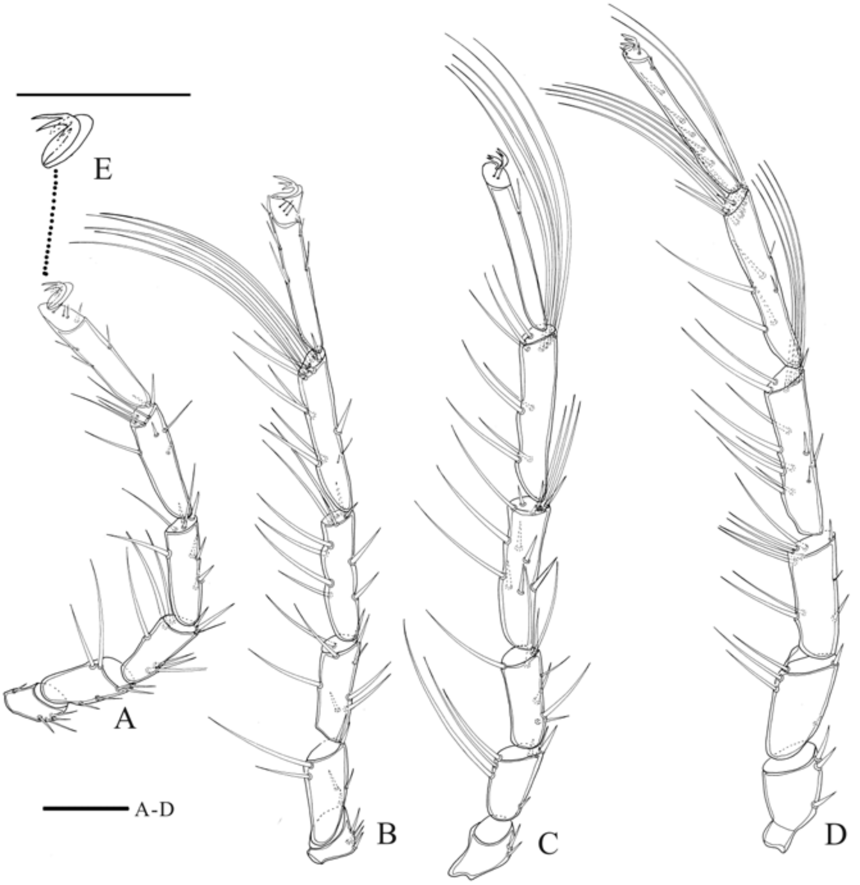

Figure 8. *P*. *anadyrensis* Tuzovskij, 1990. Female. A. Leg I; B. Leg II; C. Leg III; D. Leg IV; E. Claws of leg I. Scale bar = 100 µm.

Specimens examined. 2♂, **China**, Inner Mongolia, No. 2018071002♂HM-3 and No. 2018071002♂HM-1, from a pond, Hanma National Nature Reserve, 51°26′43″ N, 121°30′18″ E, 840 m a.s.l., by Ming AO, 10-VII-2018; 2♂, **China**, Inner Mongolia, No. 2017072611♂HM-5 and No. 2017072611♂HM-8, Hanma National Nature Reserve, 51°28′19″ N, 121°36′29″ E, 760 m a.s.l., by Zhuhui DING, 11-VII-2017; 1♀ No. 2018071002♀HM-4, same data as the No. 2018071002♂HM-3; 1♀, **China**, Inner Mongolia, No. 2017072503♀HM-2, in Hanma National Nature Reserve, 51°28′19″ N, 121°36′29″ E, 760 m a.s.l., by Zhuhui DING, 25-VII-2017.

Remarks. These specimens from China show a general conformity with specimens of *P. anadyrensis* Tuzovskij, 1990 by idiosoma with two pairs of anteromedial plates and one pair of posteromedial plates in female, and two pairs of anteromedial plates and U-shaped lateral stripes of secondary sclerotization being processes of ventral shield and bearing L_1, V_4, L_4 and D_4 (dorsal view) in male; O_2 fused with anterior plates in both male and female; P-4 with a pair of ventroproximal setae close to each other in both female and male; genital plates fused with ventral shield in the male.

Chinese specimens are slightly different from *P. anadyrensis* Tuzovskij, 1990. In the Chinese specimens, the ventral edge of IV-L-6 has 7–9 short, thick setae rounded at apex and two distal setae situated somewhat apart in males from China, while *P. anadyrensis* Tuzovskij, 1990 has 7–8 short, thick setae rounded at apex and 2–3 distal setae situated somewhat apart from the Russian specimens.

Habitat. Standing water.

Distribution. Russia (Magadan Province, Chukotka); China (Inner Mongolia, Hanma National Nature Reserve).

2. ***Pionacercus leuckartti* Piersig, 1894** (Figs 9–17), new record to China

Pionacercus Piersig, 1894: 271–273.

Description. Male. Idiosoma almost round (Fig. 9), dorsum with a large dorsal plate, bearing seven pairs of setae (O_2, D_1, D_2, D_3, D_4, L_2 and L_3). O_1, A_2, L_1, L_4, V_3, V_4 placed on soft integument (dorsal view). All coxal plates fused forming one plate (Fig. 10), AGP with well-developed apodemes, suture line between Cx-III and Cx-IV incomplete, not reaching median margin. Posteromedial parts of Cx-IV forming a deep rectangular indentation, in which the E_4 and genital opening, and anterior pair of genital acetabula are situated. Genital acetabula large, median and posterior acetabula close together forming transverse row. V_1 and V_2 situated in secondary sclerotization zone of ventral shield. Excretory pore with anterior and posterior sclerite.

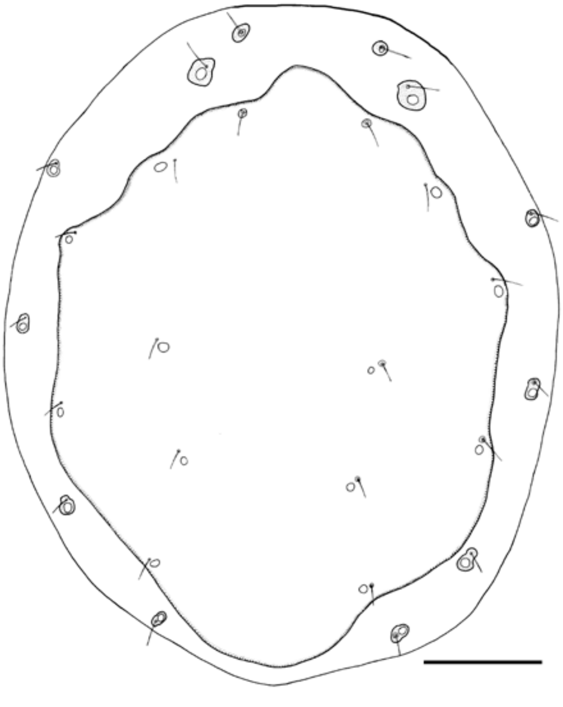

Figure 9. *P. leuckartii* Piersig, 1894. Male, dorsal view. Scale bar = 100 µm.

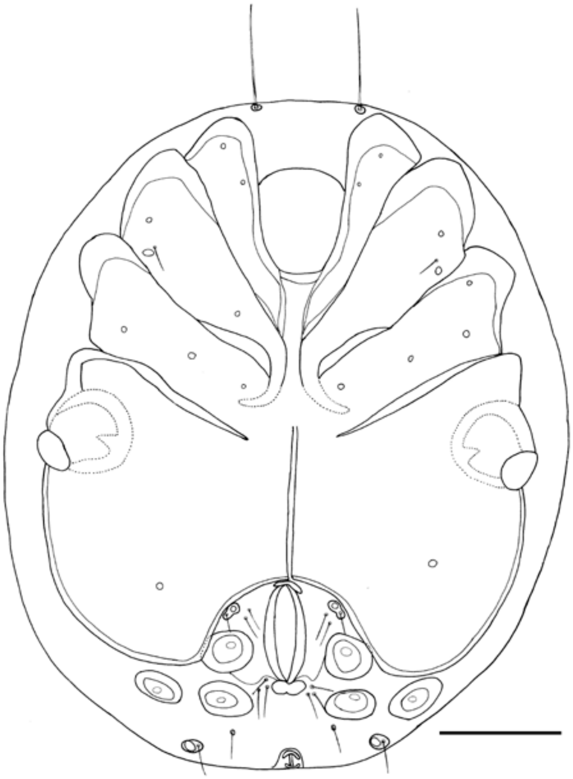

Figure 10. *P. leuckartii* Piersig, 1894. Male, ventral view. Scale bar = 100 µm.

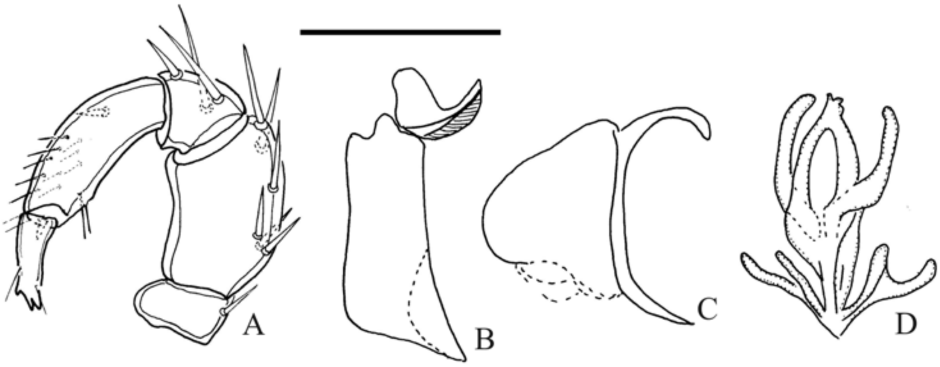

Figure 11. *P. leuckartii* Piersig, 1894. Male. A. Palp; B. Chelicera; C. Infracapitulum; D. Ejaculatory complex. Scale bar = 100 µm.

Gnathosoma. Palp short (Fig. 11), P-1 with one dorsal seta; P-2 five dorsal setae and one feathered seta; P-3 two dorsal setae and one lateral long seta; chelicera (Fig. 11B) gradually tapering with a claw. Two ventral apodeme of infracapitulum (Fig. 11C) are very developed.

Ejaculatory complex. Ejaculatory complex (Fig. 11D) with long proximal and comparatively short distal arms, proximal chamber large, with a curving narrow proximal projection, forming a V-shape.

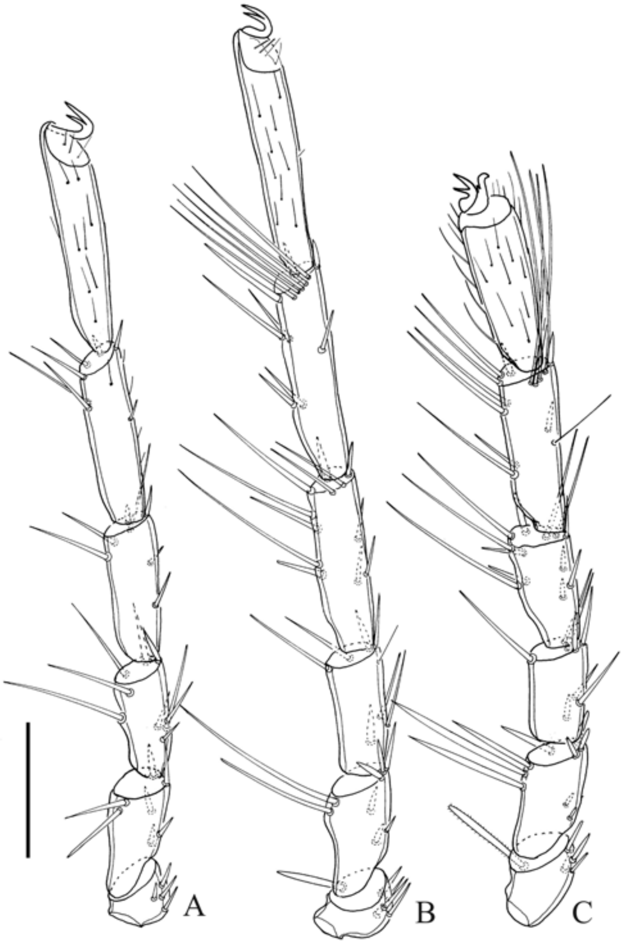

Figure 12. *P. leuckartii* Piersig, 1894. Male. A. I leg; B. II leg; C. III leg. Scale bar = 100 μm.

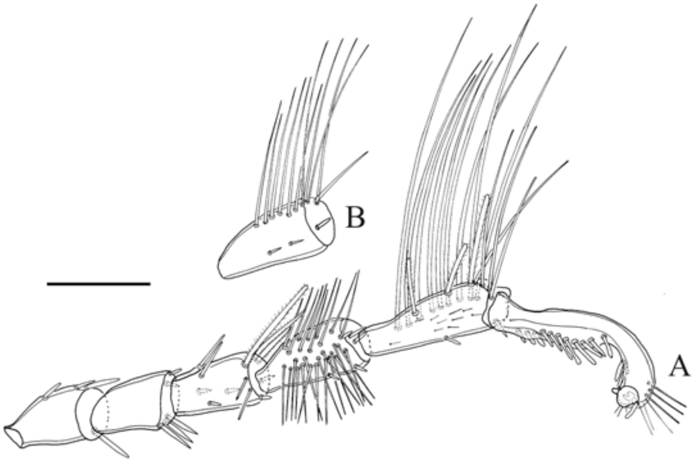

Figure 13. *P. leuckartii* Piersig, 1894. Male. A. IV leg, B. IV-L-4, ventral view. Scale bar = 100 μm.

Legs. I–IV are shown in Fig. 12. Leg I (Fig. 12A) longer than leg III (Fig. 12C), I-L-1 with four dorsal and one ventral setae, I-L-2 with two dorsal, three lateral and two ventral setae, I-L-3 four dorsal, two lateral and three ventral setae, I-L-4 three dorsal, two lateral and two ventral setae, I-L-5 with two dorsal, one lateral and four ventral setae, I-L-6 with many thin lateral setae. II-L-1 (Fig. 12B) with four dorsal setae and one seta, II-L-2 with four, two lateral and two ventral setae, II-L-3 with three dorsal, three lateral setae and one ventral seta, II-L-4 with three dorsal, four lateral and five ventral setae, II-L-5 with two dorsal setae, one lateral seta, five ventral setae and five swimming setae, II-L-6 with some thin lateral setae. Leg III (Fig. 12C) shorter than the others, III-L-1 with four dorsal seta and one feathered ventral seta, III-L-2 with four dorsal setae, one lateral seta and three ventral setae, III-L-3 with four dorsal three lateral setae and one ventral seta, III-L-4 with two dorsal, three short and two long lateral setae, and five ventral setae, III-L-5 with two dorsal, two lateral, six ventral and four swimming setae. III-L-5 with two dorsal, many lateral thin setae and six ventral setae, claws of leg III developed. IV-L-1 with three dorsal setae and one ventral seta, IV-L-2 with one dorsal seta, one lateral seta and three ventral setae, IV-L-3 two dorsal, five lateral and five ventral, IV-L-4 with two dorsal six short lateral and numerous thin lateral and nine short and three long swimming setae (Fig. 13B), IV-L-5 three dorsal feathered setae, one ventral seta and twelve long swimming setae, IV-L-6 with 11 peg-like setae in addition to two subdistal and distal peg-like setae.

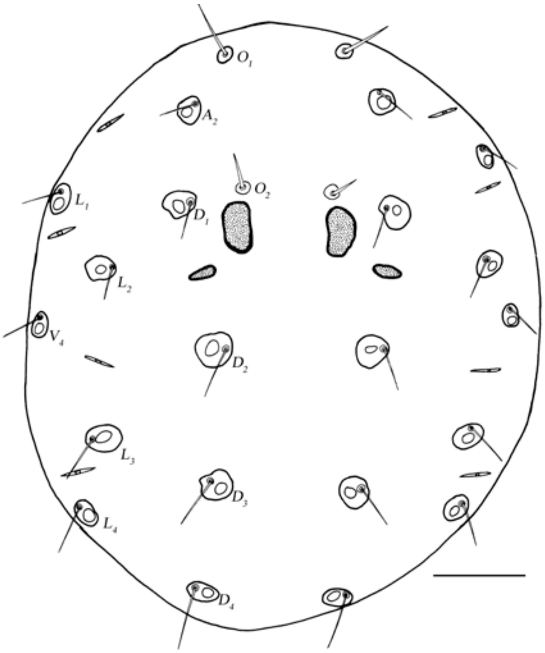

Figure 14. *P. leuckartii* Piersig, 1894. Female, dorsal view. Scale bar = 100 µm.

Measurements (*n* = 2). Idiosoma L/W = 398/345–410/341(ratio 1.15–1.20). Genital field L/W = 76/192–90/181 (ratio 0.39–0.45). LA = 172–183. LP = 252–264. Chelicera L = 102–111. L of P-1–5: 17–22, 60–66, 30–32, 58–64, 30–31. L of I-L-1–6: 26–33, 59–66, 65–66, 83–93, 103–106, 135–145. L of II-L-1–6: 40–53, 64–77, 75–84, 103–105, 126–131, 148–149.

L of III-L-1–6: 44–54, 56–58, 61–67, 63–74, 97–102, 104–106. L of IV-L-1–6: 72–82, 61–74, 72–75, 83–106, 113–125, 105–125.

Female. Idiosoma. Idiosoma almost round (Fig. 14), integument soft and smooth; dorsum with two pairs of plates, anterior pair large and elongated, posterior pair small and transverse. All dorsal setae thin and approximately equal in length. Four pairs of lyriform organs situated along lateral margins of dorsum. One pair of elongate plates lateral to PCG (Fig. 15). Coxal plates in four groups occupying approximately half of venter, ACG with short posterior apodemes; E_2 located between Cx-II and Cx-III; suture line between Cx-III and Cx-IV not complete, medial margin of Cx-III slightly longer than that of Cx-IV; posteromedial margins of Cx-IV slightly concave, posterior apodemes reduced. E_4 lying free between Cx-IV and genital field. Genital plates more or less triangular, shorter than genital opening; acetabular plates with three pairs of acetabula, each side with six setae. Anterior genital sclerite longer and slender than posterior one, with convex anterior and concave posterior margin. Excretory pore with anterior and posterior sclerites, anterior sclerite larger than posterior one, extending posteriorly and forming two horns, which are close to posterior sclerite.

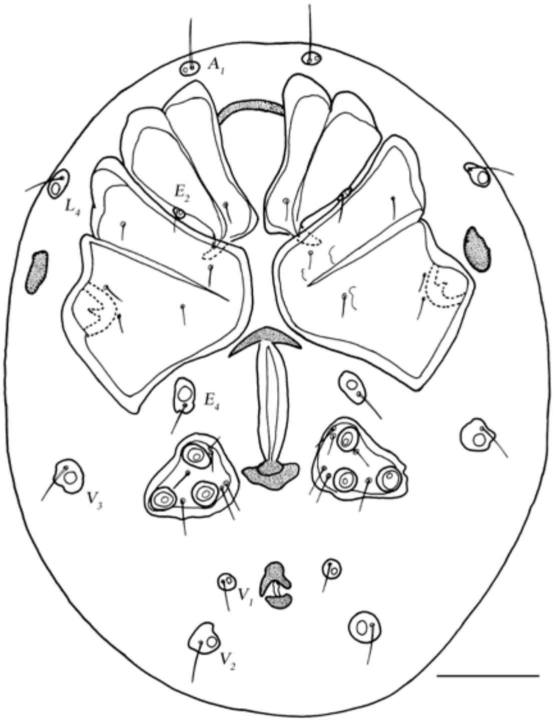

Figure 15. *P. leuckartii* Piersig, 1894. Female, ventral view. Scale bar = 100 μm.

Gnathosoma. Palp (Fig. 16B) same as the male: except P-4 tapering distally, with three thin dorsal setae, two long hair-like ventral setae and a distolateral spine. Chelicera (Fig. 16A) and infracapitulum (Fig. 16C) same as in the male.

Legs. Legs I–IV are shown in Fig. 17. Leg I nearly as long as leg II (Figs 17A, 17B). I-L-1–6 gradually thicker distally, I-L-1with four dorsal unequal setae and one ventrodistal feathered seta; I-L-2 with two equal dorsal, two lateral and two ventral setae; I-L-3 with two dorsal, two lateral and two ventral setae; I-L-4 with two dorsal setae of different length, three lateral setae and one ventral seta; I-L-5 with two dorsal, two lateral three ventral and two short swimming setae. I-L-6 dorsally with one extremely fine seta, terminal segments of I-L-6 with five thin setae. Leg II (Fig. 17B): II-L-1 with four dorsal setae and one ventral feathered seta, II-L-2 with three short dorsal and two long ventral setae, II-L-3 with three dorsal setae, one extremely fine seta and three equal setae, II-L-3 with four dorsal setae and eight heavy setae, II-L-4 with four dorsal, three lateral and four ventral setae, II-L-5 with four dorsal of different sizes, one extremely fine seta, three pairs of ventral long seta and four swimming seta, II-L-6 with one lateral thin seta, dorsally four slender setae and two claws, clawlets unequal; leg III slightly shorter than leg IV (Figs 17C, 17D): III-L-1 with four dorsal setae and one ventrodistal normal seta, III-L-2 with two dorsal setae, one lateral seta and three ventral setae, III-L-3 with four dorsal setae, two lateral feathered setae and one ventral seta, III-L-4 with two dorsal setae, one lateral, five long ventral and three short swimming setae, III-L-5 with four dorsal, two lateral, three pairs of ventral long setae and five long swimming setae; III-L-6 with one dorsal seta, dorsally three thin setae and two claws; leg IV the thickest and longest: IV-L-1 with three dorsal setae and one ventral seta, IV-L-2 with two dorsal and three ventral setae, IV-L-3 with two dorsal setae, two lateral, two pairs of ventral and two short swimming setae, IV-L-4 with two dorsal, three lateral, seven ventral and three short swimming setae, IV-L-5 with four dorsal, two lateral, five ventral and five long swimming setae, IV-L-6 with six ventral setae of different sizes and two claws.

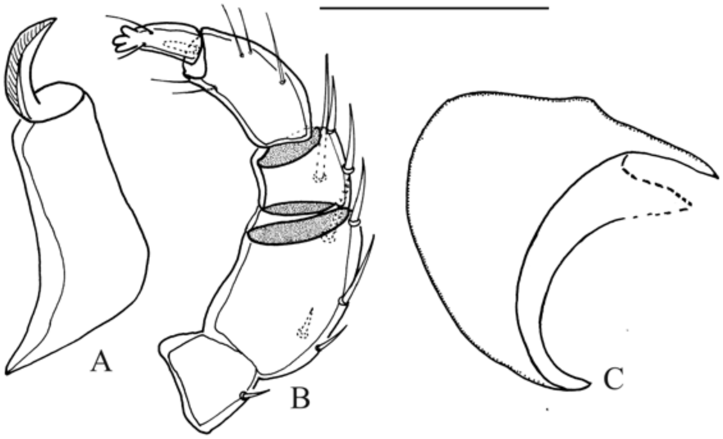

Figure 16. *P. leuckartii* Piersig, 1894. Female. A. Chelicera; B. Palp; C. Infracapitulum. Scale bar = 100 μm.

Measurements (n = 5). Idiosoma L/W = 547/479–637/548 (ratio 1.14–1.16). Genital field L/W = 72/217–100/257 (ratio 0.33–0.39). LA = 151/170. LP = 232/263. Medial distance between Cx-IV 20–33. Chelicera L = 150–161. L of P-1–5: 22–27, 73–80, 33–37, 58–62, 27–35. L of I-L-1–6: 42–52, 63–72, 72–79, 92–101, 96–114, 122–135. L of II-L-1–6: 50–58, 64–88, 75–86, 102–113, 132–140, 141–154. L of III-L-1–6: 54–65, 78–95, 77–83, 109–121, 141–160, 138–153. L of IV-L-1–6: 80–95, 79–94, 96–108, 130–145, 149–168, 143–160.

Specimens examined. 1♂, **China**, Inner Mongolia, Hanma National Nature Reserve, No. 2018071002♂HM-2, from a pool, 51°26′43″ N, 121°30′18″ E, 840 m a.s.l., by Zhuhui DING, 10-VII-2018. 1♂, No. 2017072724♂HM-1, **China**, Inner Mongolia, Hanma National Nature Reserve, 51°28′45″ N, 121°71′45″ E, 761 m a.s.l., by Zhuhui DING, 27-VII-2017. 5♀, **China**, Inner Mongolia, Hanma National Nature Reserve, No. 2017072614♀HM-1–5, from a pool, 51°28′19″ N, 121°36′29″ E, 770 m a.s.l., by Zhuhui DING, 26-VII-2017.

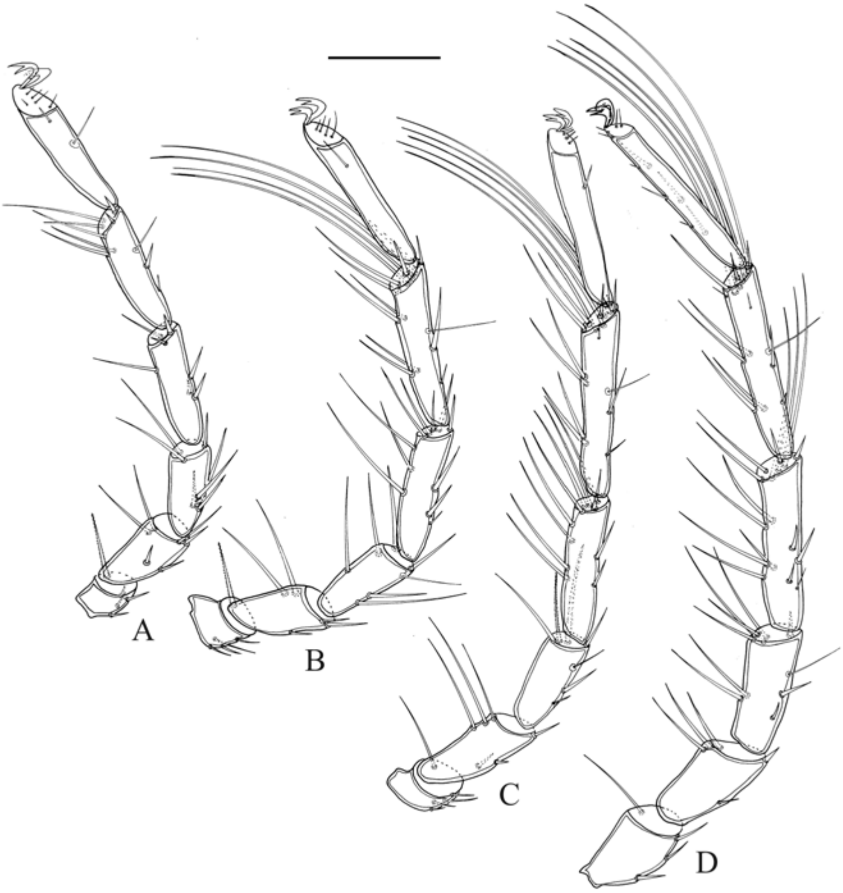

Figure 17. *P. leuckartii* Piersig, 1894. Female. A. Leg I; B. Leg II; C. Leg III; D. Leg IV. Scale bar = 100 μm.

Remarks. Chinese specimens show a general conformity with *P. leuckartii* characterized by dorsal shield large, covering almost all dorsal surface and bearing seven pairs of setae in male and dorsum with two pairs of well-developed plates, large elongate anterior and small transverse posterior in female; posteromedial parts of coxal plates IV forming a deep rectangular indentation in male; P–4 with straight ventral margin with one pair of ventral setae close to each other in male and female. The characters of Chinese specimens are slightly different from the original description of *P. leuckartii* Piersig, 1894: apodeme of ACG reaches half of Cx-III in females from Chinese specimens, while it reaches two-thirds of Cx-III from Russia.

Habitat. A pond.

Distribution. Europe; Asia：Russia (Baikal Karelia), China (Inner Mongolia, Hanma National Nature Reserve); North America (Tuzovskij P. V., 2013).

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